USAID FIRMS PROJECT

Monitoring Potato Trainings on Post-Harvest Best Management Practices

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Data Page

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Abstract:

As a part of monitoring Value Chain Development Program, monitoring of trainings on Potato Post-harvest Best Management Practices was conducted. These training were held in district Swat, Khyber Pakhtunkhwa during the month of September 2012. Pre & post training questionnaires were administered with randomly selected 109 potato growers to measure the change in their knowledge as a result of their participation in the trainings. The report provides the detailed analysis of this monitoring exercise.

Acronyms

KP	Khyber Pakhtunkhwa
M&E	Monitoring and Evaluation
PMP	Performance Management Plan
Project	USAID Firms Project
SMEs	Small and Medium Enterprises
USAID	United States Agency for International Development
VCD	Value Chain Development

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Executive Summary

As a part of monitoring Potato Sector Program, M&E conducted real time monitoring and evaluation of trainings on Potato Post-harvest Best Management Practices in district Swat, Khyber Pakhtunkhwa during the month of September 2012. Pre & post training questionnaires were administered with all of the 109 selected participants to measure the change in their knowledge as a result of their participation in the trainings.

Findings:

- Monitoring observed a commulative increase in knowledge to 41% (33% pre training to 74% post training) during the trainings.
- Highest increase of 70% (from 19% to 89%) was recorded on 'post-harvest losses in potato crop' followed by 58% (from 19% to 77%) increase on 'storage of potato under shade after harvesting'.
- Lowest increase of 18% (from 81% to 99%) was recorded about the 'factors of potato greening' followed by 27% (from 4% to 31%) increase on the 'physiological maturity'.
- Four areas revealed 30 to 35% knowledge increase on the 'potato maturity index' (from 24% to 54%), 'potato a living thing' (from 19% to 50%), 'average production time of crop' (from 68% to 100%) and the 'important measures before harvesting' (from 21% to 55%).
- An increase of 54% was observed on the 'packing material of potato' (from 42% to 96%) followed by 52% (from 37% to 89%) increase on the 'transportation of potato to the distant markets'.
- 1 out of 109 of the attendees of the training was not counted as the 'trained' because he was not present in the training for the minimum required time (75%) as per definition of trained/qualified person in PMP.

Major recommendations:

- The cumulative increase in knowledge indicates that there is still requirement of forty seven percent improvement. It is pertinent to mention that all the important topics are covered just in four to five hours long training time. This leaves less time to facilitator to effectively address all important topics of the trainings and even difficult for the attendees to absorb it. It is recommended that the duration of training should be increased for the future programs.
- Value Chain Development (VCD) team need to work together to maximize the attendance duration of the participants to ensure we are in compliant with the projects' definition of 'trained' beneficiary. It is also pertinent to mention that no attendance sheet is signed and dated by the organisers. In attendance sheets, the time in and out is also found missing for most of the participants.
- Training should focus more on issues on which participants had little prior knowledge i.e. topics related to the physiological maturity, potato a living thing, post-harvest losses, physiological maturity and storage of potato crop.

1. INTRODUCTION

The objective of the USAID Firms Project is to improve government service delivery and develop dynamic, internationally competitive private sector small and medium enterprises (SMEs) to accelerate sales, investment, and job growth to undercut the basis of extremism. Socioeconomic stabilization of vulnerable areas in Pakistan is in the strategic interest of and is an urgent priority for the U.S. Government. The primary prerequisite for this stabilization is a robust and competitive private sector resulting from a market-driven economic environment and enabling policies.

The USAID Firms Project has worked in 2012 with 226 potato SMEs in 6 geographical clusters in Upper Swat to upgrade their skills and increase revenues and jobs. The activity has resulted in a trained workforce of 151 potato SMEs in pre-harvest and 142 SMEs in post-harvest best management practices. About 155 SMEs have reported the application of their skills and best management practices in their potato business. Furthermore 89 numbers of SMEs have transferred the skills to their farm labor, friends and relatives.

1.1 Objectives

The overarching objective of the monitoring of potato trainings is to assess the effectiveness and impact of the training initiative. More specifically it aims to:

1. Assess the improvement in participants' knowledge as result of their participation in the project assisted training;
2. Assess the extent to which participants are applying the improved farming practices that they learned from the project assisted trainings; and
3. Assess the extent to which the improved farming practices have contributed to the overall goal of the potato program.

The ongoing monitoring and follow-up of the trainees would feed all of these three objectives. It is envisioned that comprehensive training impact would be required towards the end of the program to specifically achieve the third objective and evaluation of the training program.

1.2 Sampling

1.2.1 Sampling Design for Potato

The sample for the monitoring of the potato training participant was calculated by using the following formula.

Table 1 Formula for Calculating Monitoring of the Potato Training Participant

Sample size	n = Deff [(Zα + Zβ)2 * (Pb (1 - Pb) + Pe (1 - Pe))] /(Pe - Pb)2		
Design effect	Deff	1.3	Design effect is set at 1.3
Significance	Zα	1.282	set at 0.90
Power	Zβ	1.282	set at 0.90

Proportion at baseline1	Pb	0.5	Baseline value is set to 50%
Proportion at endline	Pe	0.73	Expected change at the end line
Sample size		72	Sample Required

The equations above include "deff" for the design effect. This provides a correction for the loss of sampling efficiency resulting from the use of cluster sampling instead of simple random sampling, and the gain of sampling efficiency resulting from stratification. It is the factor by which the sample size must be multiplied by in order to produce study estimates with the same precision as a simple random sample. It was assumed a priori that inter-household variation is small compared to that of population-based assessments that are based on severity classes. Thus, a design effect (deff) of 1.3 is used.

By applying this formula the total required sample comes to 72

The total number of beneficiary farmers (240) is relatively small, so the sample does not need to be large. We thus adjust n by a finite population correction factor to obtain the required sample size as follows:

Finite Population Correction

$$n = \frac{n_0}{1 + \frac{n_0 - 1}{N}}$$

Where,
n = sample size
N = Population size (i.e. total number of participating potato growers)
n0 = sample size to be adjusted
The total sample required is 56.
However the sample will also take into account the fact that some farmer will refuse to participate. We also expect some of the farmers to be absent, (non-participation-NP) at the time of the assessment and the possibility of missing or doubtful values (non-response-NR). We estimate that NP = 5% and NR = 5%.
ST=ROUNDUP (n*(1+NP)*(1+NR),)
Sample target = 62
Hence 62 potato growers will be randomly selected thus expecting to reach a sample size to 56 farmers.

1.2.2 Selection of Farmers:

The project has mobilized potato producer SMEs in six clusters as part of its implementation scheme. Four clusters of farmers were randomly selected for the assessment. The target sample of 62 farmers was proportionately distributed in these four clusters, and comprised 16 farmers randomly selected from each of the four clusters from a list of cluster members.

[1] No prior reliable information existed for estimating the expected proportion of key variables prior to sampling, thus a value of 0.5 is used which maximizes the impact of this formula component on the sample size.

2. METHODOLOGY

M&E department has introduced pre and post training assessment to measure the change in participants2' knowledge level as result of their participation in the trainings. A closed ended pre/post training assessment questionnaire was developed in consultation with the Consultant, Value Chain Development and Training Specialist. The questionnaire included questions on the most important aspects of the training to see whether these subjects were adequately addressed by the facilitators and to gauge the extent participants were able to comprehend those topics. The pre training questionnaire was designed to be administered with the randomly selected participants before the trainings started. Post training questionnaire were administered at the end of the training with the same participants who were selected for the pre training interviews.

As part of the monitoring exercise, M&E team visited all of four trainings and administered pre and post training assessment questionnaire with randomly selected 109 participants.

Cluster wise breakdown of the qualified and interviewed participants

Table 2 Cluster wise breakdown of the qualified and interviewed participants

Province/ District	Cluster Locations	Total # of qualified participants	# of Participants interviewed	
			Day 1	Day 2
KPK/Swat	Mankeyal/Gorkin	38	20	10
	Kargilo	39	20	16
	Chirat	22	18	5
	Sakhra	9	16	4
Total		**108**	**74**	**35**

Training being held at Swat-Khyber Pakhtoonkhawa

[2] A qualified participant, according the USAID Firms project PMP, is a person who attends at least 75% of the trainings session.

3. FINDINGS, DISCUSSIONS AND RECOMMENDATIONS

1.3 Results of the Pre/Post Training Assessment

Findings of these assessment exercises showed that:

Training sessions were effective in bringing about an improvement in participants' knowledge about potato post-harvest best management practices. The cumulative overall increase in the trainings was 41% which resulted in the overall knowledge gain to be around 74%. It is evident that training has been effective in improving trainees' understanding of critical issues related to 'potato post-harvest best management practices'.

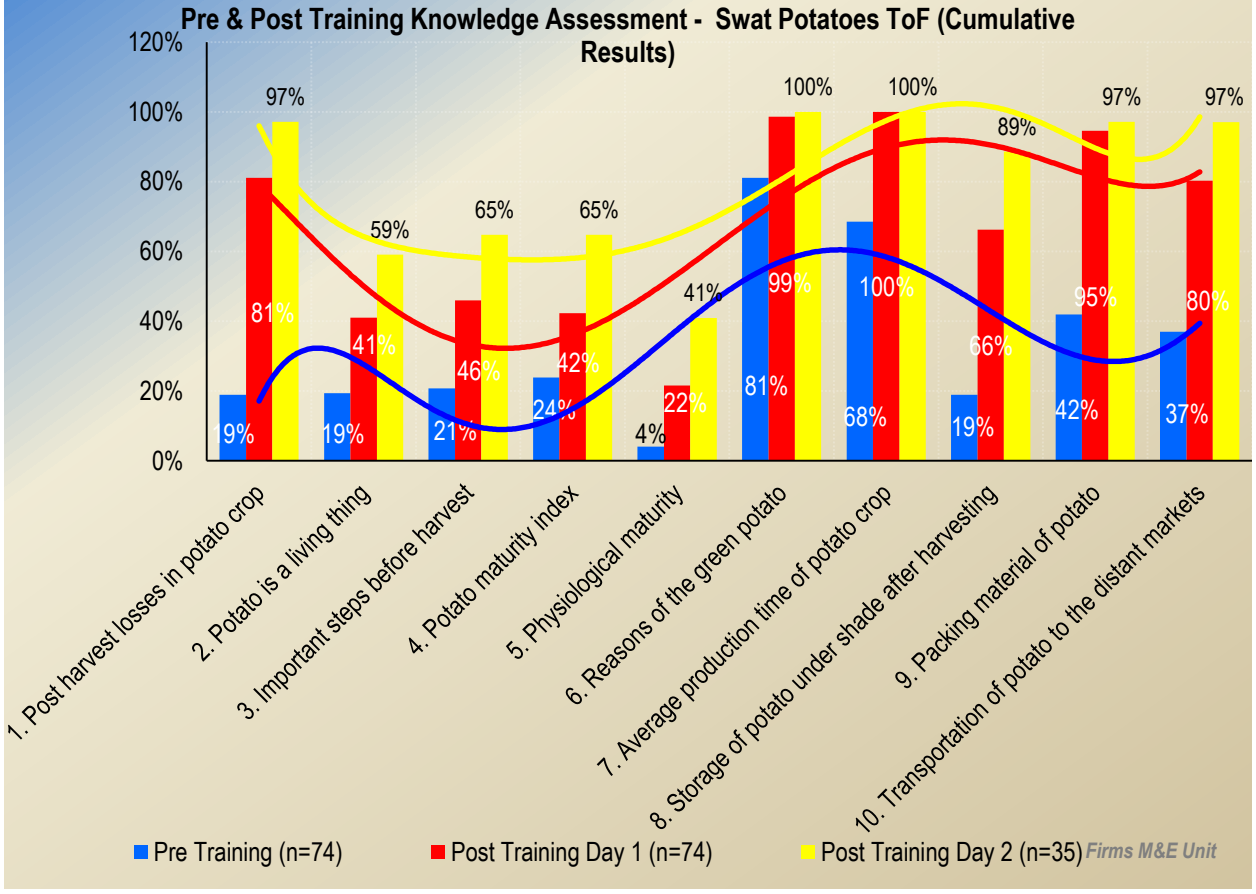

Figure 1 Swat Potatoes ToF (Cumulative Results)

- Monitoring observed a cumulative increase in knowledge to 41% (33% pre training to 74% post training) during the trainings.

- Highest increase of 70% (from 19% to 89%) was recorded on 'post-harvest losses in potato crop' followed by 58% (from 19% to 77%) increase on 'storage of potato under shade after harvesting'.
- Lowest increase of 18% (from 81% to 99%) was recorded about the 'factors of potato greening' followed by 27% (from 4% to 31%) increase on the 'physiological maturity'.
- Four areas revealed 30 to 35% knowledge increase on the 'potato maturity index' (from 24% to 54%), 'potato a living thing' (from 19% to 50%), 'average production time of crop' (from 68% to 100%) and the 'important measures before harvesting' (from 21% to 55%).
- An increase of 54% was observed on the 'packing material of potato' (from 42% to 96%) followed by 52% (from 37% to 89%) increase on the 'transportation of potato to the distant markets'.
- 1 out of 109 of the attendees of the training was not counted as the 'trained' because he was not present in the training for the minimum required time (75%) as per definition of trained/qualified person in PMP.

Pre Post Knowledge Assessments of Potato Post-Harvest Trainings in Swat, KPK.

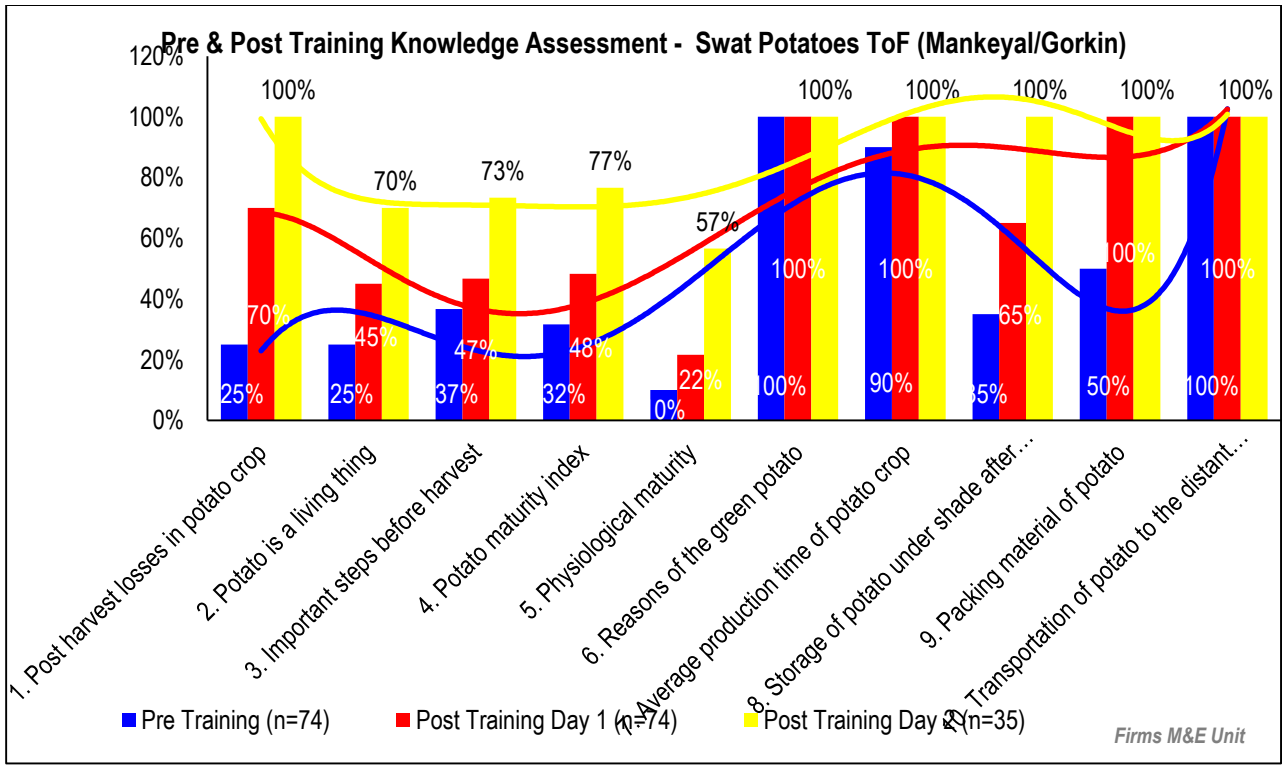

Figure 2: Swat Potatoes ToF (Mankeyal/Gorkin)

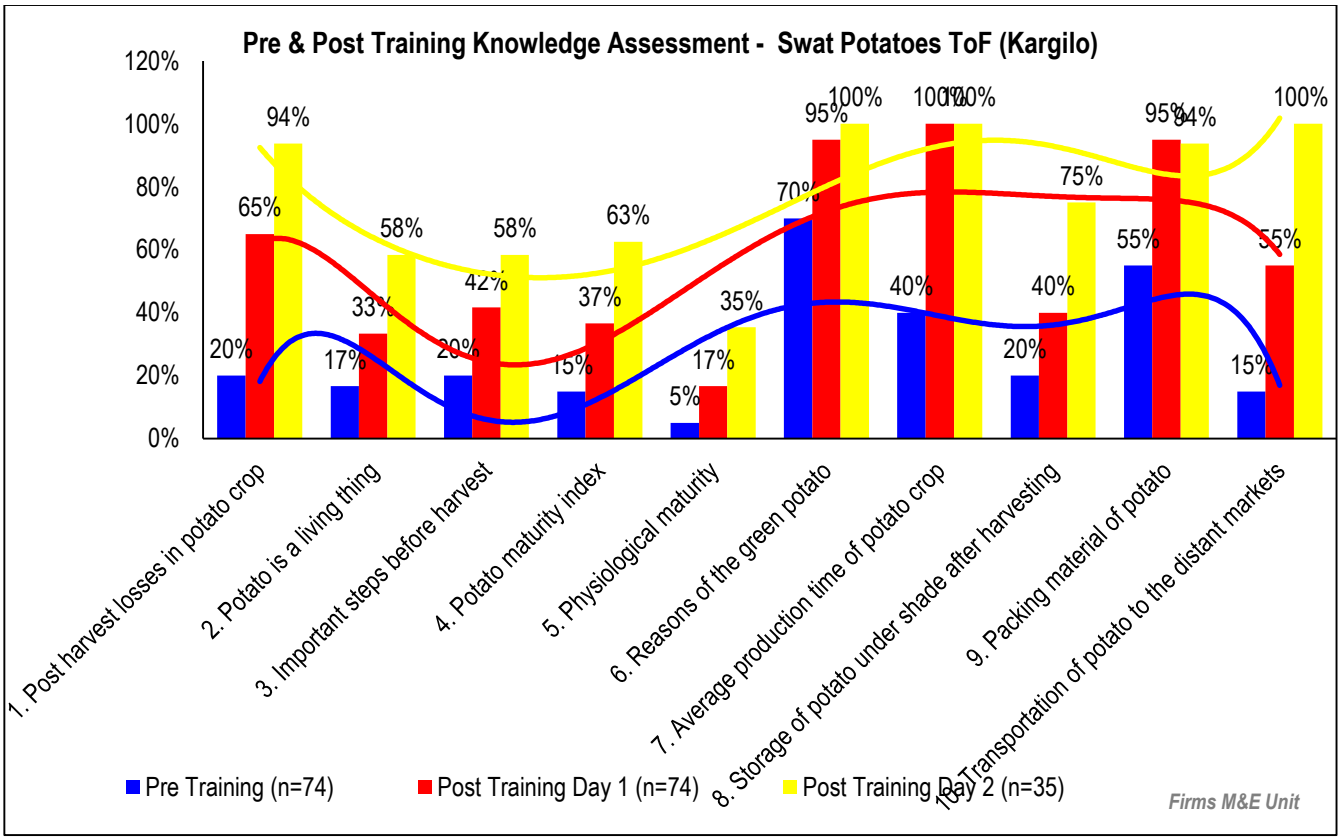

Figure 3: Swat Potatoes ToF (Kargilo)

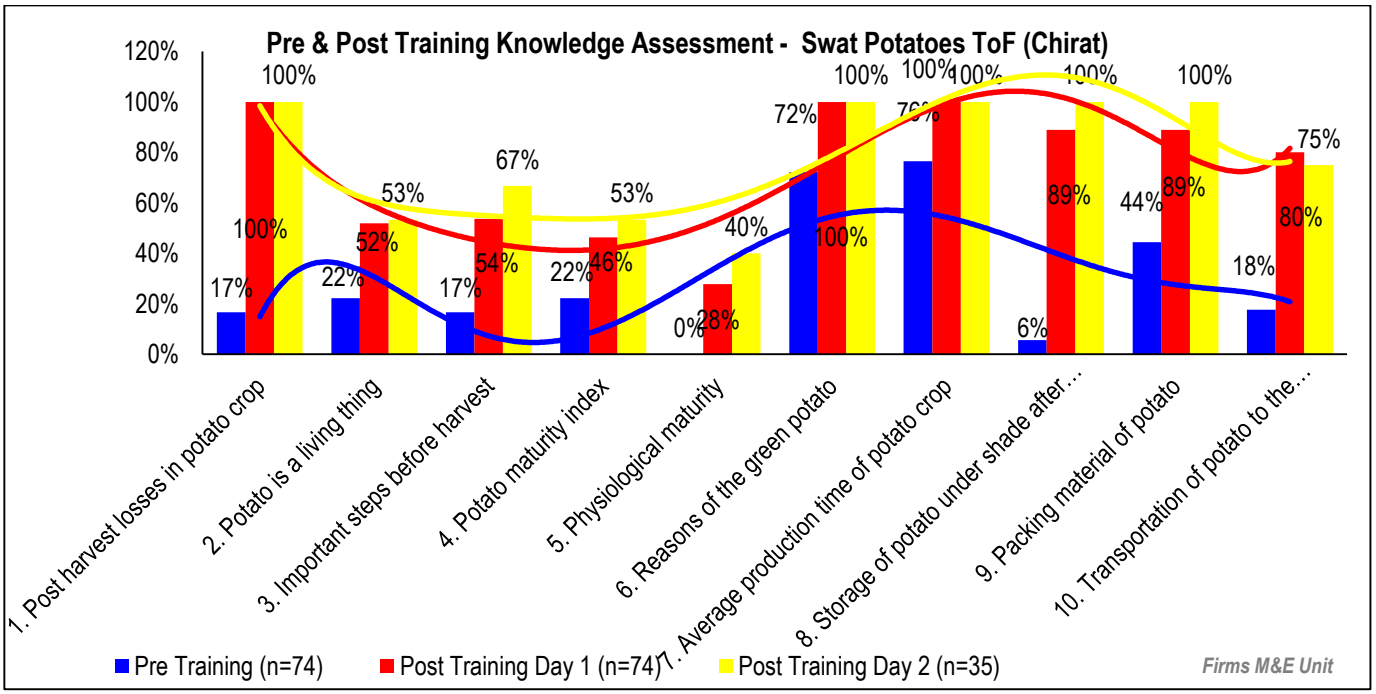

Figure 4: Swat Potatoes ToF (Chirat)

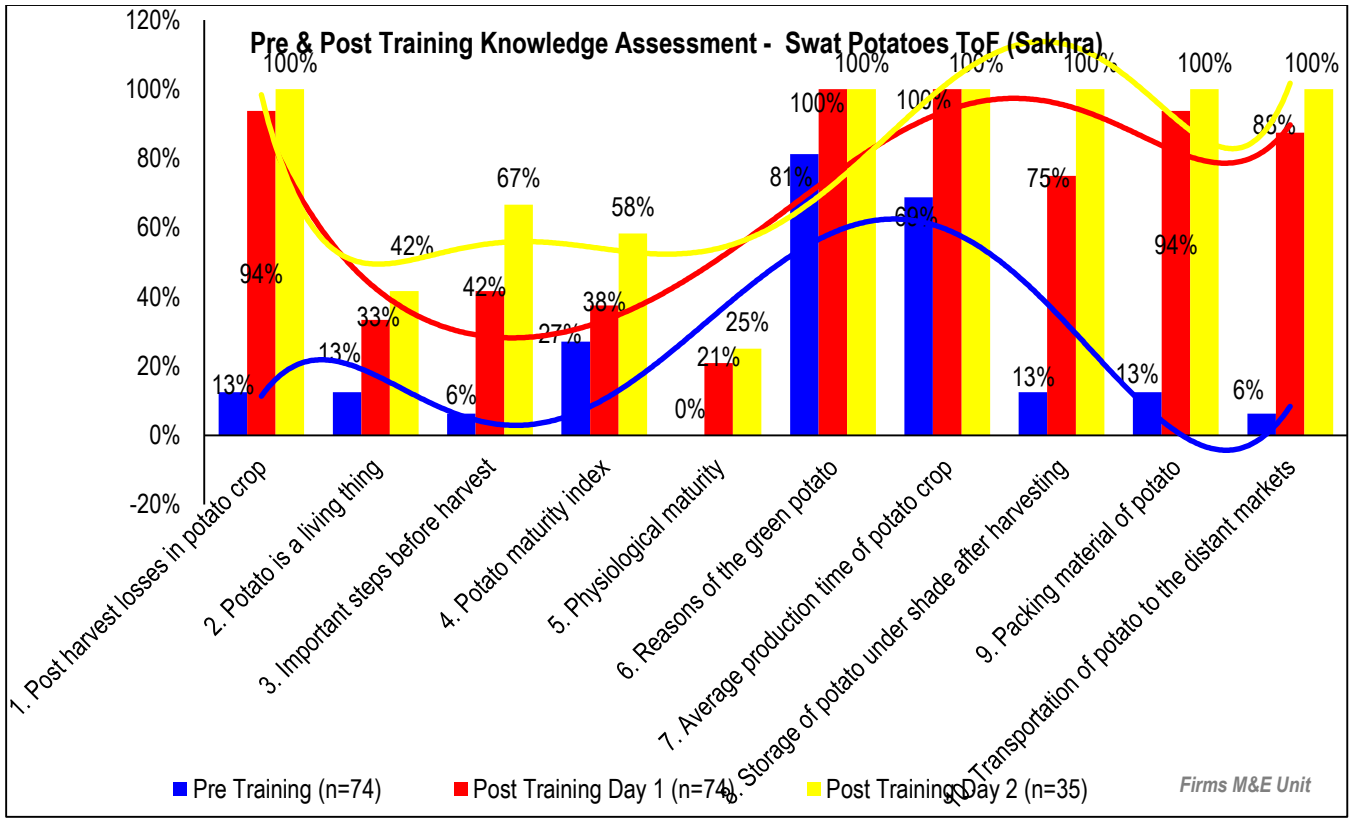

Figure 5: Swat Potatoes ToF (Sakhra)

4. GENERAL RECOMMENDATIONS

- The cumulative increase in knowledge indicates that there is still requirement of forty seven percent improvement. It is pertinent to mention that all the important topics are covered just in four to five hours long training time. This leaves less time to facilitator to effectively address all important topics of the trainings and even difficult for the attendees to absorb it. It is recommended that the duration of training should be increased for the future programs.

- Training should focus more on issues on which participants had little prior knowledge i.e. topics related to the physiological maturity, potato a living thing, post-harvest losses, physiological maturity and storage of potato crop.

- It is important to mention that the selection of a food technologist as a resource person from South, lengthy (1 hour long) procedure of registration, monthly data collection on the day of training, poor logistical/transport arrangement and the field visit to a demonstration plot of table potato negatively impacted the training.

- Value Chain Development (VCD) team need to work together to maximize the attendance duration of the participants to ensure we are in compliant with the projects' definition of 'trained' beneficiary. It is also pertinent to mention that no attendance sheet is signed and dated by the organisers. In attendance sheets, the time in and out is also found missing for most of the participants.

5. CONCLUSION

Potato Sector Program is running a comprehensive training program to equip potato farmers about the best practices in farming, and hands-on farm management practices. Monitoring exercise not only showed that trainings have contributed to an increase in participants' knowledge level but also identified the gaps where improvements can be made. The exercise also highlighted how monitoring of the future trainings can be improved. Most of the findings and recommendations presented in this report have already been shared with the relevant team members and some of them have already been followed upon. M&E will continue to monitor all future trainings to assess the extent to which the improved farming practices have contributed to the overall goal of the potato program.

6. ANNEXURE

Annexure -1: Pre-Post Training Questionnaires

آلو کی برداشت و بعد از برداشت سنبھال کے مسائل سے متعلقہ دو روزہ

تربیتی ورکشاپ

قبل از ٹریننگ ٹیسٹ

نام کاشتکار۔۔۔۔۔۔۔۔۔۔۔۔ کلسٹر کا نام۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔ تاریخ۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔

مندرجہ ذیل سوالات کے درست جوابات کی نشاندہی کریں:

۱۔ بعد از برداشت صحیح نگہداشت نہ ہونے کی صورت میں کتنے فیصد آلو ضائع ہو جاتے ہیں

1. 30 فیصد

۲۔ آلو ایک جاندار شے ہے کیونکہ یہ:

1. سانس لیتا ہے 2. نمی خارج کرتا ہے 3. بیمار بھی ہو سکتا ہے

۳۔ برداشت کے عمل میں 10 سے 15 دن پہلے کون سے کام ضروری ہیں

1. آبپاشی کا بند کرنا 2. بیلیں کاٹنا 3. تربیت یافتہ مزدوروں کا بندوبست کرنا

۴۔ برداشت کے لئے آلو کی پختگی کا اندازہ کس طرح سے لگایا جا سکتا ہے

1. بیلوں کا خشک ہونا 2. آلو کا مکمل سائز حاصل کر لینا 3. آلو کا سخت ہو جانا

۵۔ طبعی تبدیلی (Curing) کے لئے سازگار ماحول کیا ہونا چاہئے

1. درجہ حرارت 15-20 ڈگری سنٹی گریڈ 2. نمی کا تناسب 90-95 فیصد 3. سورج کی براہ راست روشنی سے بچاؤ

۶۔ آلو سبز ہونے کی کیا وجہ ہو سکتی ہے

1. براہ راست سورج کی روشنی کا پڑنا

۷۔ آلو کی فصل کالام کے علاقہ میں اوسطاً کتنے دن میں تیار ہو جاتی ہے

1. 100-110 دن

۸۔ آلو کو برداشت کے بعد سایہ دار جگہ پر کتنے دن تک رکھنا چاہئے

1. 5-8 دن

۹۔ آلو کی پیکنگ کے لئے کونسا میٹیریل بہتر ہوتا ہے

1. جالی دار 50 کلو والا پلاسٹک کا تھیلا

۱۰۔ آلو کی دور کی منڈیوں میں ترسیل کا سب سے مناسب وقت کونسا ہے

1. شام کے وقت

USAID
منجانب امریکی عوام

آلو کی برداشت و بعد از برداشت سنبھال کے مسائل سے متعلقہ دو روزہ تربیتی ورکشاپ

بعد از ٹریننگ ٹیسٹ

نام کاشتکار۔۔۔۔۔۔۔۔۔۔۔۔ کلسٹر کا نام۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔ تاریخ۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔۔

مندرجہ ذیل سوالات کے درست جوابات کی نشاندہی کریں:

۱۔ بعد از برداشت صحیح نگہداشت نہ ہونے کی صورت میں کتنے فیصد آلو ضائع ہو جاتے ہیں

1. 30 فیصد

۲۔ آلو ایک جاندار شے ہے کیونکہ یہ:

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1. شام کے وقت

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